

09/10/99

**(DO NOT USE FOR CIPs)**

Continuation )  
application under 37 CFR 1.53(b)(1)  
Divisional )

of pending prior application of

Group Art Unit:

Examiner:

Inventor(s): HENSHAW

Parent Appln. No.:	PCT	GB97/00800
	Series Code ↑	↑ Serial No.

Atty. Dkt. PM 254839  
New M#

Delmar  
Client Ref

Parent Filed: March 21, 1997

This Case Filed: September 10, 1999

Title: RODENTICIDE

Date: September 10, 1999

Asst. Commissioner of Patents  
Washington, DC 20231

(Parent Matter No. 254839)

Sir:

To effect the above-requested filing today:

**Attached** is a copy (**which must be filed**) of this application, including:

- ☒ Abstract
- ☒ Specification and claims (8 pages) (**must be attached**)
- ☐ Drawings (**must be attached if originally filed**): \_\_\_\_\_ sheet(s)/set: ☐ 1 set informal;  
☐ Formal of size ☐ A4 ☐ 11"

**A. Always X one box, only:**

- (1) ☐ Signed declaration or oath as originally filed in prior application attached
- (2) ☒ NO declaration or fee is enclosed; therefore, this is a filing under Rule 53(f).

2. ☐ This application is hereby filed by less than all of the inventors named in the prior application. Petition is hereby made requesting deletion as inventor(s) of the following who is/are **not** inventor(s) of the invention being claimed in this application:

1. \_\_\_\_\_
3. \_\_\_\_\_
5. \_\_\_\_\_
7. \_\_\_\_\_
9. \_\_\_\_\_
2. \_\_\_\_\_
4. \_\_\_\_\_
6. \_\_\_\_\_
8. \_\_\_\_\_
10. \_\_\_\_\_

3. The entire disclosure of the prior application is considered as being part of the disclosure of the accompanying application and is hereby incorporated therein by reference thereto.

4. ☒ Priority is claimed under 35 U.S.C. 119/365 based on filing in Great Britain of \_\_\_\_\_  
(country)

<u>Application No.</u>	<u>Filing Date</u>	<u>Application No.</u>	<u>Filing Date</u>
(1) <u>GB97/00800</u>	<u>March 21, 1997</u>	(4) _____	_____
(2) _____	_____	(5) _____	_____
(3) _____	_____	(6) _____	_____

a. ☐ \_\_\_\_\_ (No.) Certified copy/copies attached.

b. ☐ Certified copy/copies previously filed on \_\_\_\_\_ in

U.S. Application No. \_\_\_\_\_ / \_\_\_\_\_, filed on \_\_\_\_\_.

series code  $\uparrow$   $\uparrow$  serial no.

c. ☐ Certified copy/copies filed during International stage of PCT/ \_\_\_\_\_ /

4. (a) ☒ Domestic priority is claimed from PCT/ GB97/00800, filed March 21, 1997.

(b) ☐ Benefit is claimed of Provisional Application No. 60/\_\_\_\_\_, filed \_\_\_\_\_.

5. ☐ Prior application is assigned to

by assignment recorded \_\_\_\_\_ Reel \_\_\_\_\_ Frame \_\_\_\_\_  
(Date)

6. ☐ Attached is the following number of Assignments (including original and all later successive ones by different assignors): \_\_\_\_\_ and respective **new** Cover Sheets. (Do **NOT** file old cover sheets.)

(Assignments in parent **must be refiled** with new Cover Sheets in this continuing application if you want it/them recorded against the continuing application.)

Please return the recorded Assignment to the undersigned.

7. ☐ The power of attorney in the prior application is to \_\_\_\_\_

(Name and Reg. No.)

whose current address is as in item 8 below.

a. ☐ Recognize as associate attorney \_\_\_\_\_

(Name, Reg. No. and Address)

8. **Address all future communications to Intellectual Property Group  
of Pillsbury Madison & Sutro LLP, Ninth Floor, East Tower 1100 New York Avenue, N.W.,  
Washington, D.C. 20005-3918**

9. ☒ **Amend the specification** by inserting before the first line the sentence:--This is a  
☒ continuation ☐ division of Application No. PCT/GB97/00800, filed March 21, 1997  
series code  $\uparrow$   $\uparrow$  serial no. \_\_\_\_\_

9. (a) ☐ **Amend the specification** by inserting before the first line: --This application claims the benefit of  
Provisional Application No. 60/\_\_\_\_\_, filed \_\_\_\_\_.

10. ☐ It has been recently determined that this new continuing application is entitled to small entity status.  
Hence:

(No.) Verified Statement(s) establishing "small entity" status under Rules 9 & 27 were/are:

☐ filed in above prior application (and hence applicable hereto)

☐ attached.

11. Petition to extend the life of the above prior application to at least the date hereof

(one box) ☒ is being concurrently filed for that prior application (see Petition under 3 CFR 1.137(b))

(must be) ☐ was previously filed in that prior application (Check length of prior extension).

(X'd) ☐ is not necessary for copendency (**Double check** before X'ing this box).

12. ☐ **INFORMATION DISCLOSURE STATEMENT:** Attached is Form PTO-1449 listing all of the documents cited by Applicant and the PTO in the parent application(s) relied upon under 35 USC 120 and referenced in item 9 above. Per Rule 98(d) copies of those documents are not required now. Please consider those documents and advise that they have been considered in this new application as by returning a copy of the enclosed Form PTO-1449 with the Examiner's initials in the left column per MPEP 609. .
13. ☐ Attached is a Rule 103(a) Petition to Suspend Action.
14. ☒ **PRELIMINARY AMENDMENT to be entered before fee calculation:** (Do not make amendments here except for correction of improper multiple dependencies or cancellation of whole claims or multiple dependencies for purpose of reducing the filing fee per MPEP §§ 506 and 607; do not cancel all claims).

Cancel claims 2-13.

### FILING FEE

THE FOLLOWING FILING FEE IS BASED ON

-->>>> CLAIMS AS FILED AND CHANGED BY PRELIMINARY AMENDMENT IN ITEM 14 <<<<<<

**NOTE:** If box 1A2 is X'd, do not pay fees,  
but leave lines 15-22 and 27-32 blank.

				Large/Small Entity		Fee Code
15. Basic Filing Fee . . . . . Design Application				\$310/\$155		106/26
16. Basic Filing Fee . . . . . Not Design Application				\$760/\$380	+760	101/201
17. Total Effective Claims	1	minus 20 =	0	x \$18/\$9	+0	103/203
18. Independent Claims	1	minus 3 =	0	x \$78/\$39	+0	102/202
19. If any proper multiple dependent claim (ignore improper) is present,				\$260/\$130	+0	104/204
20. Subtotal =				\$760		
21. Rule 17(m) fee for Rule 137(b) Petition . . . . . \$1210					+1210	141
21A. If box 6 above is X'd, add Assignment recording fee . . . . . \$40					+	581
22. TOTAL FILING FEE ATTACHED =					\$1970	

(carry forward to Item 31)

23. ☐ ATTACHED:
24. ☒ Preliminary Amendment attached (to be entered after assigning Appln. No.)
25. ☐ The following PRELIMINARY AMENDMENT is to be entered after assigning Appln. No.:

26.

**ADDITIONAL FEE CALCULATION FOR  
PRELIMINARY AMENDMENT  
PER BOXES 24/25**

	Claims remaining after amendment	Highest number previously paid for	Present Extra	Large/Small Entity	Additional Fee	File Code
27.	Total Effective Claims	<u>*21</u>	minus ** <u>20</u> = <u>1</u>	x \$18/\$9 =	\$ <u>18</u>	(103/203)
28.	Independent Claims	<u>*6</u>	minus *** <u>3</u> = <u>3</u>	x \$78/\$39 =	+ <u>234</u>	(102/202)
29.	If amendment enters proper multiple dependent claim(s) into this application for the first time, add (per application) .....\$260/\$130				+ <u>0</u>	(104/204)
30.	ADDITIONAL FEE				\$ <u>252</u>	
31.	plus FEE from item 22 on page 3				+ <u>1970</u>	
32.	<b><u>TOTAL FEE ATTACHED</u></b>				\$ <u><u>2222</u></u>	

33. \*If the entry in this space is less than the entry in the next space, the "Present Extra" result is "0"

34. \*\*If the "Highest number previously paid for" (see item 17 above) is less than 20, write "20" in this space

35. If the "Highest number previously paid for" (see item 18 above) is less than 3, write "3" in this space

Our Deposit Account No. 03-3975

Our Order No. <u>81816</u>	<u>254839</u>
C#	M#

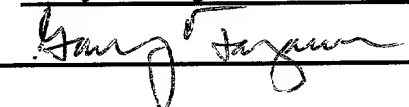
**CHARGE STATEMENT:** Upon the filing of a Declaration pursuant to Rule 60(b) or 60(d), the Commissioner is hereby authorized to charge any fee specifically authorized hereafter, or any missing or insufficient fee(s) filed, or asserted to be filed, or which should have been filed herewith or concerning any paper filed hereafter, and which may be required under Rules 16-18 (missing or insufficient fee only) now or hereafter relative to this application and the resulting Official document under Rule 20, or credit any overpayment, to our Account/Order Nos. shown above for which purpose a duplicate copy of this sheet is attached.

**This CHARGE STATEMENT does not authorize charge of the issue fee until/unless an issue fee transmittal form is filed.**

**Pillsbury Madison & Sutro LLP  
Intellectual Property Group**

1100 New York Avenue, N.W.  
Ninth Floor, East Tower  
Washington, D.C. 20005-3918  
Tel: (202) 861-3000  
GRT/maf  
Atty./Sec.

By Atty: Gary R. Tanigawa

Sig: 

Reg. No. 43,180

Fax: (202) 822-0944  
Tel: (202) 861-3546

**NOTE No. 1:** File this Request in duplicate with 2 postcard receipts (PAT-103) & attachments  
**NOTE No. 2:** Is extension in parent necessary for copendency? **DOUBLE CHECK** Item 11 above.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

**HENSHAW**

Continuation Appln. of PCT/GB97/00800 designating the U.S.

Filing Date: September 10, 1999

FOR: RODENTICIDE

\* \* \*

September 10, 1999

**PRELIMINARY AMENDMENT**

Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

Sir:

Prior to calculation of the filing fee, entry of the following amendments and remarks is respectfully requested.

**IN THE CLAIMS:**

Kindly cancel claims 1-13 and add the following new claims in lieu thereof.

--14. A rodenticide comprising cellulosic material which is non-toxic to humans but which causes rodents to at least excrete material selected from the group consisting of body fat and adipose tissue.

15. A rodenticide comprising rodenticidal material obtained from a cob core of maize hybrid DK 446.

16. A rodenticide comprising rodenticidal material obtainable from a cob core of a maize hybrid, said hybrid normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and normally having a single giant ear of corn.

17. A rodenticide according to claim 16 wherein said hybrid is selected from the group consisting of DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634, and DK 512wx.

18. A rodenticide according to claim 14 which is provided with a sweet material which acts as a bait attractant.

19. A rodenticide according to claim 18 wherein said sweet material is selected from the group consisting of ground sugar beet and unrefined molasses.

20. A rodenticide according to claim 15 which is provided with a sweet material which acts as a bait attractant.

21. A rodenticide according to claim 20 wherein said sweet material is selected from the group consisting of ground sugar beet and unrefined molasses.

22. A rodenticide according to claim 16 which is provided with a sweet material which acts as a bait attractant.

23. A rodenticide according to claim 22 wherein said sweet material is selected from the group consisting of ground sugar beet and unrefined molasses.

24. A rodenticide according to claim 17 which is provided with a sweet material which acts as a bait attractant.

25. A rodenticide according to claim 24 wherein said sweet material is selected from the group consisting of ground sugar beet and unrefined molasses.

26. A rodenticide comprising material which is an agonist in rodents of cellulosic white core material obtained from maize hybrid DK 446 which is rodenticidal when administered in a manner enabling free access by rodents.

27. A rodenticide according to claim 26 which is provided with a sweet material which acts as a bait attractant.

28. A rodenticide according to claim 27 wherein said sweet material is selected from the group consisting of ground sugar beet and unrefined molasses.

29. A rodenticide according to claim 26 wherein said material is non-toxic at a controlled dosage level of up to 15g/kg per day.

30. A method of alleviating rodent infestation, the method comprising depositing in a region of infestation a rodenticide comprising cellulosic material obtainable from a cob of a maize hybrid selected from the group consisting of DK 446, DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634, and DK 512wx.

31. A method according to claim 30 wherein said cellulosic material is white hard core cellulosic material.

32. A method according to claim 30 wherein a sweet material is utilised as a bait attractant.

33. A method of making a rodenticide comprising bringing into association a bait attractant and cellulosic material, said cellulosic material being obtainable from a cob of a maize hybrid selected from the group consisting of DK 446, DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634, DK 512wx, and maize hybrids characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and by normally having a single giant ear of corn.

34. A method as claimed in claim 33 wherein said cellulosic material is white hard core material.--

**REMARKS**


Claims 14-34 are pending.

Applicant submits that the amendments to the specification and claims are supported by the disclosure as originally filed. Thus, no new matter has been added.

Favorable examination on the merits is earnestly requested. If further information is required, the Patent Office is invited to contact the undersigned.

Respectfully submitted,

Cushman Darby & Cushman  
Intellectual Property Group of  
PILLSBURY MADISON & SUTRO, L.L.P.

By   
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

**HENSHAW**

PCT/GB97/00800 designating the U.S.

Filing Date: March 21, 1997

FOR: RODENTICIDE

\* \* \*

September 10, 1999

**PETITION UNDER 37 CFR 1.137(b)**

Honorable Commissioner of  
Patents and Trademarks  
Washington, D.C. 20231

Sir:

Applicant petitions the Commissioner to revive the above-referenced international application because delay in filing a national stage application in the U.S. Patent and Trademark Office (USPTO) (i.e., failure to prosecute by entering the national phase prior to abandonment of the international application) was unintentional. In the interest of justice, Applicant respectfully requests that this petition be granted so that copendency can be established and examination of the claims in the continuation application can proceed with a priority date of March 27, 1996.

The priority date claimed by the international application is March 27, 1996. It was Applicant's intention to enter the U.S. national phase under Chapter I. Therefore, the international application became abandoned on November 27, 1997 because the requirements under 35 U.S.C. 371 for entry into the national stage had not been satisfied within 20 months after the priority date of March 27, 1996. Applicant petitions to revive the international application under 37 CFR 1.137(b), and thereby establish copendency with the continuation application submitted herewith, because failure to prosecute by entering

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the national phase or filing a continuation application in the USPTO prior to abandonment of the international application was unintentional.

The Applicant and sole inventor of the present invention, Joseph H. Henshaw, suffered badly from arthritis and was hospitalized for about three months in late 1997. He was in no position to provide instructions to enter the national stage in the USPTO on or about the deadline of November 27, 1997.

The Assignee of the present invention, Delmar Products Ltd., was also unable to provide instructions to enter the national stage in the USPTO on or about the deadline of November 27, 1997. Around the time when entering the national stage application under 35 U.S.C. 371 or filing a continuation application under 35 U.S.C. 120 was due, instructions from the Assignee could not be obtained because of a legal action against Gary Marston, a director of the Assignee, and the resulting shortage of funds and chaos in the handling of the affairs of Delmar Products Ltd.

Thus, the undersigned did not receive instructions from the inventor, the Assignee, or an agent of the inventor or Assignee that the national phase should be entered or a continuation application should be filed in the USPTO by the deadline of November 27, 1997.

Because the international application became abandoned due to failure to enter the national stage or file a continuation application in the USPTO, a Notice of abandonment was not received from the USPTO. Thus, the undersigned did not petition to revive the present application within one year of the date of abandonment because no Notice of abandonment would have been issued from the USPTO under these circumstances.

On September 2, 1999, an agent of the Assignee contacted the undersigned to inquire whether an application could be filed in the USPTO claiming a priority date of

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March 27, 1996. The undersigned responded to the inquiry by explaining that a petition to revive the abandoned international application could be submitted if sufficient facts existed to show that failure to prosecute by entering the national phase or filing a continuation application in the USPTO and, therefore, the abandonment of the international application were unintentional. The above chronology of events and explanation for why the national phase was not entered or a continuation application was not filed in the USPTO by November 27, 1997 was provided by the Assignee's agent to show that the entire delay was unintentional.

The filing of a continuation application is submitted to constitute the reply required under 37 CFR 1.137(b)(1).

The petition fee set forth in Rule 17(m) and required under 37 CFR 1.137(b)(2) is submitted herewith. However, if this fee is deemed insufficient to consider the present petition, the Patent Office is authorized to charge the missing or additional fee to our deposit account no. 03-03975, order no. 81816/254839. A duplicate copy of this paper is attached to insure proper crediting and/or debiting of our deposit account.

As explained above, the entire delay in filing the required reply from November 27, 1997 to the present date was unintentional in accordance with 37 CFR 1.137(b)(3).

Finally, in the present case, a terminal disclaimer is not considered to be required under 37 CFR 1.137(b)(4) because the continuation application filed as the required reply claims priority from the present application and has a filing date after June 8, 1995 (i.e., September 13, 1999). If the Commissioner should require filing a terminal disclaimer, however, Applicant would be prepared to make the necessary dedication to the public of a terminal part of the term of any patent granted equivalent to the period of abandonment. If

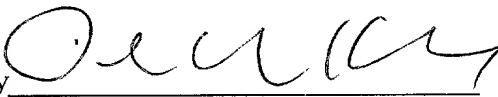
HENSHAW - PCT/GB97/00800 designating the U.S.

this is deemed to be necessary, Applicant respectfully requests that the requirement for a terminal disclaimer include a calculation of the term to be disclaimed.

A favorable decision on this petition is earnestly requested. If further information is required, the Patent Office is invited to contact the undersigned.

Respectfully submitted,

Cushman Darby & Cushman  
Intellectual Property Group of  
PILLSBURY MADISON & SUTRO, L.L.P.

By 

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# APPLICATION UNDER UNITED STATES PATENT LAWS

Invention: RODENTICIDE

Inventor(s): Joseph H. HENSHAW (Nicosia, Cyprus)

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Intellectual Property Group  
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Telephone: (202) 861-3000

This is a:

- ☐ Provisional Application
- ☐ Regular Utility Application
- ☒ Continuing Application
- ☐ PCT National Phase Application
- ☐ Design Application
- ☐ Reissue Application
- ☐ Plant Application
- ☐ Substitute Specification  
Sub. Spec. filed \_\_\_\_\_  
in App. No. \_\_\_\_\_ / \_\_\_\_\_
- ☐ Marked Up Specification re  
Sub. Spec. filed \_\_\_\_\_  
in App. No. \_\_\_\_\_ / \_\_\_\_\_

## SPECIFICATION

Rodenticide

The present invention relates to rodenticides.

5 It has unexpectedly been discovered that the cellulosic material obtainable from the core of the cob of a certain hybrid of maize (*Zea mays*, known as corn in the USA) is toxic to rodents but not to humans.

10 This hybrid is known as DK 446 and is obtainable from Dekalb Plant Genetics (3100 Sycamore Rd, DeKalb, IL 60115 USA). It normally grows to a height of 2.7 to 3.3 metres (9 to 11 feet) and normally has a single giant ear of corn. It is commonly grown for use as cattle feed.

15 Accordingly in one aspect the invention provides a rodenticide comprising rodenticidal material obtainable from the core of the cob of maize hybrid DK 446.

20 The cellulosic material obtained from the core of the cob of the above hybrid has been analysed and has been found to consist of essentially pure  $\alpha$  cellulose, which is the naturally occurring form of cellulose.  $\alpha$  cellulose is generally recognised as a safe food additive with essentially no toxicity to humans and domestic animals.

25 Without wishing to be bound by theory, it is believed that rats and mice lose body fat and adipose tissue by excretion in the faeces and urine after eating the above cellulosic material, and eventually starve to death.

30 Accordingly, in another aspect the invention provides a rodenticide comprising cellulosic material which is non-toxic to humans but which causes rodents to excrete body fat and/or adipose tissue.

35 It is believed that the different effects on rodents and humans may be due to their different digestive systems, but the precise mode of action of the above rodenticidal material is currently unknown.

40 Other hybrids similar to the above DK 446 hybrid (especially maize hybrids characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and

by normally having a single giant ear of corn) are envisaged to be useful sources of identical or similar cellulosic rodenticidal material which is also usable in rodenticides in accordance with the invention. Furthermore hybrids DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 and DK 512wx, all obtainable from Dekalb Plant Genetics, are envisaged to be useful sources of identical or similar rodenticidal material.

Preferably the rodenticide of the present invention incorporates or is associated with a bait attractant such as a sweet material, eg ground sugar beets or unrefined ("black strap") molasses, although any conventional bait attractant can be employed.

The cellulosic material can be obtained by tumbling the cob of a hybrid of the above DK 446 hybrid (although it is envisaged that similar hybrids eg hybrids DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 and DK 512wx are also useful) to remove the reddish-brown outer layer, separating the outer layer material from the white hard core material of the cobs, and crushing the white core material, eg to the consistency of sawdust. The resulting powdered white hard core material is then preferably mixed with the bait attractant (eg unrefined molasses or ground dehydrated sugar beets). Preferably the bait attractant comprises 0.3% to 5%, more preferably 1% by weight of the mixture. The mixture is then preferably extruded eg at 30 to 1,000MPa, preferably 324 MPa (47,000 psi) and the extrudate (which is eg of circular cross-section, with a diameter of eg 4 to 12mm, preferably 10mm diameter) can then be cut into pellets with a length of eg 10 to 30mm, preferably 25mm.

The above method of preparation can be varied however. For example the bait attractant could be coated on the extrudate or pellets instead of or in addition to being incorporated in the mixture before extrusion. Accordingly the invention also encompasses any rodenticide comprising cellulosic material (preferably the white hard core material) obtainable from the cob of any of the above hybrids (preferably DK446, but possibly one or more of hybrids DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 and DK 512wx as well as any maize hybrids characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and by normally having a single giant ear of corn).

In another aspect the invention provides a method of alleviating rodent infestation

(particularly infestation by rats and mice), the method comprising depositing in the region of infestation a rodenticide comprising cellulosic material (preferably the white hard core material) obtainable from the cob of any of the above hybrids (preferably DK446, but possibly one or more of hybrids DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 and DK 512wx as well as any maize hybrids characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and by normally having a single giant ear of corn).

The invention also provides a method of making a rodenticide comprising the step of bringing into association a) a bait attractant and b) cellulosic material (preferably the white hard core material) obtainable from the cob of any of the above hybrids (preferably DK446, but possibly one or more of hybrids DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 and DK 512wx as well as any maize hybrids characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and by normally having a single giant ear of corn).

The non-toxic nature of the rodenticide of the invention has in fact been proved in the following study involving the controlled administration of predetermined amounts of the rodenticide to rats:

#### Toxicity study

TEST ANIMALS: Sprague Dawley derived Rattus norvegicus

NUMBER AND SEX (in each group): 5 Male & 5 Female (females nulliparous and non-pregnant)

NUMBER OF GROUPS FOR LD<sub>50</sub>: 2

WEIGHT RANGE (at initiation) Male: 200-300 grams

Female: 200-300 grams

DIET: Standard laboratory feed for rodents: food and water were available *ad libitum*.



4

TEST MATERIAL AND DOSE LEVEL FOR LD<sub>50</sub>: finely ground white hard core cellulosic material, obtained from Dekalb maize hybrid DK 446, mixed with 1% by weight "black strap" molasses, the mixture being mixed with Tween 80® at a 1:2 (w:v) concentration in a dose level of 5g/kg and 15.1g/kg for the respective groups.

FREQUENCY AND ROUTE OF ADMINISTRATION: Once every 24 hours for the 5g/kg dose level; at the 15.1g/kg dose level each animal was given a portion of its dose at two dosing points within approximately four hours. The doses were administered orally by syringe and suitable intubation tube.

STUDY PERIOD: 14 days

### RESULTS

There were no mortalities in the 5g/kg dose level group. In the 15.1g/kg dose level group the animals that died immediately after dosing due to misdosing or anomaly from dosing were replaced. No mortality of surviving animals or replaced animals occurred during the study period.

All surviving animals in all dose groups had a weight gain by day 14, as exemplified in Table I below:

TABLE I  
Dose group: 15.1g/kg

Rat	Sex	Initial Wt (g)	Final Wt (g)	%change in Wt
1	F	234	278	+44
2	F	224	264	+40
3	F	227	266	+39
4	F	224	260	+36
5	F	225	266	+41
6	M	246	351	+105
7	M	250	354	+104
8	M	267	382	+115
9	M	270	384	+114
10	M	230	356	+126

There were no clinical abnormalities in the 5.0g/kg group. clinical observations in the 15.1g/kg group included rales, lethargy, diarrhoea and anogenital staining.

#### CONCLUSION

- 5 The material did not produce compound-related mortality in half or more of the animals, even at a dose level of 15.1g/kg, and can therefore be considered practically non-toxic.

#### Efficacy Study

- 10 TEST ANIMALS: Sprague Dawley derived *Rattus norvegicus*

NUMBER AND SEX (in each group): 5 Male & 5 Female (females nulliparous and non-pregnant)

- 15 NUMBER OF GROUPS: 1

WEIGHT RANGE (at initiation) Male: 115-125 grams  
Female: 115-125 grams

- 20 DIET: Standard laboratory feed for rodents; food and water were available *ad libitum*.

- 25 TEST MATERIAL: Pellets obtained by extrusion of the finely ground white hard core cellulosic material from the hybrid used in the above toxicity study, mixed before extrusion with 1% by weight "black strap" molasses.

- 30 FREQUENCY AND ROUTE OF ADMINISTRATION: The test material was placed in 113g (4 ounce) clear glass feeding jars for continuous *ad libitum* access to the food. Additional material was added daily and an equal quantity was given to each animal.

- 35 STUDY PERIOD: 14 days

#### RESULTS

- 40 All animals died by day 7. On day 4, one female was found dead. On day 5, two

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males were found dead and one female was found dead. On day 6, two males and two females were found dead. On day 7, one male and one female were found dead.

- 5 Clinical observations included dehydration, lethargy, diarrhoea, tremors, weight loss, hunching and soft light stool.

All animals had a daily weight loss, as illustrated in Table II below:

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TABLE II  
Body weight data (g)

	Rot	Sex	DAY 0	DAY 3	DAY 7
	1	F	119	93	(found dead on day 6)
15	2	F	120	91	(found dead on day 5)
	3	F	117	84	(found dead on day 4)
	4	F	122	96	(found dead on day 7)
	5	F	119	96	(found dead on day 6)
	6	M	120	99	(found dead on day 6)
20	7	M	121	91	(found dead on day 5)
	8	M	123	94	(found dead on day 5)
	9	M	123	101	(found dead on day 6)
	10	M	119	97	(found dead on day 7).

- 25 It is clear that when administered in a manner enabling free access, the test material has a powerful rodenticidal effect.

The invention also extends to a rodenticide comprising any material (particularly but not necessarily any material which is non-toxic at a controlled dosage level of up to 15g/kg per day) which is an agonist in rodents of that cellulosic white core material obtained from the DK 446 hybrid which is rodenticidal when administered in a manner enabling free access to rodents.

- 30 The invention extends to rodenticides comprising any of the cellulosic rodenticidal materials identified above, whether synthetic or obtained from natural sources.

35 The bait attractant may optionally comprise crushed whole wheat and/or crushed oats as an alternative to or in addition to the other bait attractants referred to above.

Claims

1. A rodenticide comprising cellulosic material which is non-toxic to humans but which causes rodents to excrete body fat and/or adipose tissue.
2. A rodenticide comprising rodenticidal material obtainable from the core of the cob of maize hybrid DK 446.
3. A rodenticide comprising rodenticidal material obtainable from the core of the cob of a maize hybrid characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and by normally having a single giant ear of corn.
4. A rodenticide according to claim 3 wherein said hybrid is DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 or DK 512wx.
5. A rodenticide according to any preceding claim which incorporates or is associated with a sweet material which acts as a bait attractant.
6. A rodenticide according to claim 5 wherein said sweet material is ground sugar beets or unrefined molasses.
7. A rodenticide comprising any material which is an agonist in rodents of that cellulosic white core material obtained from the DK 446 hybrid which is rodenticidal when administered in a manner enabling free access to rodents.
8. A rodenticide according to claim 7 wherein said material is non-toxic at a controlled dosage level of up to 15g/kg per day.
9. A method of alleviating rodent infestation, the method comprising depositing in the region of infestation a rodenticide comprising cellulosic material obtainable from the cob of maize hybrid DK 446 or from the cob of any of the maize hybrids DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 and DK 512wx.
10. A method according to claim 9 wherein said cellulosic material is white hard

core cellulosic material.

11. A method according to claim 9 or claim 10 wherein said rodenticide incorporates or is associated with a sweet material acting as a bait attractant.

5 12. A method of making a rodenticide comprising the step of bringing into association a) a bait attractant and b) cellulosic material obtainable from the cob of any of the hybrids specified in claim 9 or from the cob of any maize hybrid characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet)  
10 and by normally having a single giant ear of corn.

13 A method as claimed in claim 12 wherein said cellulosic material is white hard  
core material.

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## ABSTRACT OF THE DISCLOSURE

The invention provides a rodenticide comprising cellulosic material which is non-toxic to humans but which causes rodents to excrete body fat and/or adipose tissue. Suitable material is obtainable from the core of the cob of maize hybrid DK 446, a hybrid characterised by normally growing to a height of 2.7 to 3.3 metres (9 to 11 feet) and by normally having a single giant ear of corn. The cellulosic material is mixed with a bait attractant such as sugar beet or unrefined molasses and formed into pellets. The rodenticide is non-toxic when fed at controlled dosage levels (e.g. up to 15 g/kg per day) but toxic when the rats are allowed free access. Maize hybrids DK 401, DK 442, DK 512, DK 560, DK 588, DK 591, DK 604, DK 628, DK 634 and DK 512wx may also be used instead of hybrid DK 446.